# Adapting to Rising Tides Program

# Contra Costa ART Project Commission Briefing

December 15, 2016



### ART Program Projects

# Regional

Local



Bay Area Sea Level Rise Analysis and Mapping



Local Hazard Mitigation and Climate Adaptation Plans



Regional Resilience Partnerships



Stronger Housing, Safer Communities



Alameda County ART Project



Contra Costa County ART Project



Hayward Shoreline Resilience Study



Oakland/Alameda Resilience Study



Bay Area Transportation Climate Resilience



Tidal Creeks and Flood Control Channels



Corte Madera Baylands



East Bay Regional Park District





# Adapting to Rising Tides Planning Process

Society & Equity
Environment
Economy
Governance

# IMPLEMENT & MONITOR

Integrate Adaptation Responses into Plans

Evaluate & Select Adaptation Responses

**Develop Adaptation Responses** 

Select Evaluation Criteria

**Refine Resilience Goals** 

#### **SCOPE & ORGANIZE**

Convene Partners & Stakeholders
Choose Project Area
Identify Sectors, Services, Assets
Select Climate Scenarios & Impacts
Set Resilience Goals

Working Group Meeting #1

**ASSESS** 

Review Existing Conditions

Assess Vulnerability

Consider Risks

#### **DEFINE**

Characterize Vulnerabilities & Risks

Identify Key Planning Issues

#### **PLAN**



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**Identify Key Planning** 

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Meeting #7

PLAN



Working Group Meeting #8

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- A diverse and capable stakeholder working group
- Eight project resilience goals that touch on all four frames of sustainability







# **Project Outcomes**



#### **Governance:**

Prioritize and resource agencies, organizations, private entities, and communities in Contra Costa to work cooperatively to address climate change.

Improve coordination among regulatory agencies to reduce programmatic or legislative barriers to addressing current and future flood risks.

#### **Society and Equity**

Support communities, and in particular those with characteristics that could make them more vulnerable, in accessing affordable, safe and healthy housing, utilities and services, recreational opportunities, transportation and transit, and information about risk.

Protect the health, safety and welfare of all who live, work and recreate in Contra Costa County.

#### **Economy**

Maintain and improve local economic vitality and access to diverse employment opportunities by preserving the function of major employment centers, infrastructure and utilities.

Recognizing Contra Costa County's regional refining and goods movement role, ensure the energy and transportation sectors and the interconnected networks and systems they rely on are resilient.

#### **Environment**

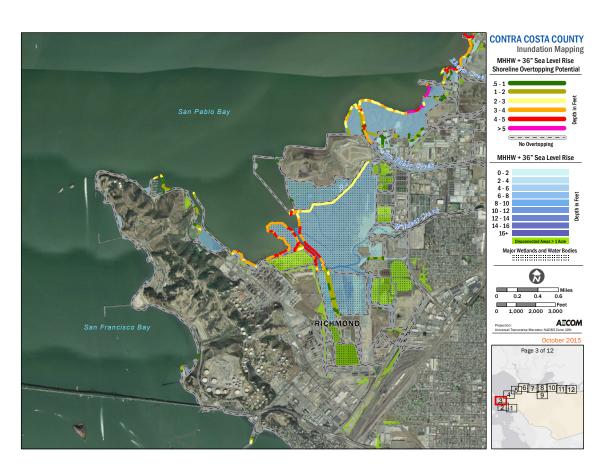
Protect and improve the environment by preserving and restoring habitat, continuing to improve air and water quality, and safely addressing contaminated lands.

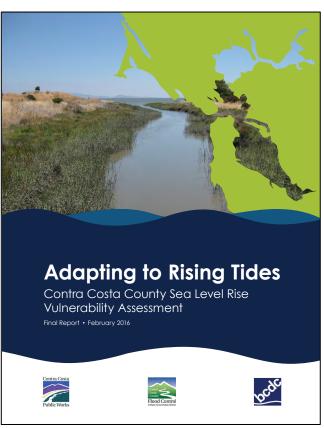
Promote the use of natural and nature-based approaches where possible and appropriate to improve community and economic resilience.

# **Project Outcomes**



 Locally refined ART sea level rise maps and shoreline overtopping analysis

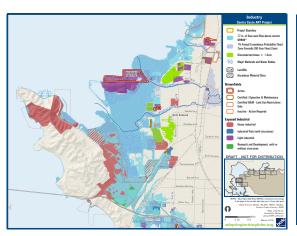




# **Project Outcomes**

ART Contra Costa Project

- A robust assessment of
   30 asset categories across
   11 different sectors
- 15 asset-specific profiles
- An understanding of the consequences of flooding on all four frames





DRAFT Assessment Chapter

Contra Costa County Adapting to Rising Tides Project

#### People

People are the core of a community. It is critical to understand the unique needs of people, and the risks they may face during a hazard. The health of a community is dependent on the health of its residents. Within their communities, and throughout the region and beyond, people create social networks and culture, support the local economy as customers and employees, and contribute to the tax base.

Flooding can impact the health of a community if there are direct impacts on people or their homes, or if important services are disrupted in the days and weeks after the event. As flood hazards become more frequent and more severe as a result of climate change, greater proportions of the population will be impacted. The impact may be more severe for some communities, especially those with people, housing, employment sites and community services within the existing coastal or riverient floodplain, and those communities with underserved, resource limited or vulnerable populations. While in many cases, social cohesion can offset some of the consequences of flooding because impacted people will be more able to help each other meet some of their daily needs, not all have the strong community or social capital needed to be self resilient.

For this project, community vulnerability is described using the approach developed to

For this project, commun the Stronger Housing, Sis partnership with the Assc Stronger Housing, Safer characteristics of individurespond to, and recover households, renters, non transit dependent individ a regional scale to identification concentration of one or noture to the community vuli age-related vulnerabilitie residents, housing tenure

#### Exposure to Curr

The Contra Costa ART p Richmond, Pinole, Herou San Pablo, and a very sr area. Also included in the of North Richmond, Tara Clyde, Vine Hill, Concord

1 http://www.adaptingtorising seismic-and-flood-risks/ Asset Profile Sheet

Contra Costa County Adapting to Rising Tides Project

#### WASTEWATER SERVICES SECTOR

#### West County Wastewater District Water Pollution Control Plant

Key Issue Statement

The West Courny Wasterwater Ustract's Water Pollution Control Plant is in the process of upgrading aging infrastructure, which may delay see level free planning even though the berms that protect the facility may need to be improved to protect the plant beyond 2030. Storm events as sea levels rise have the pollution for the tweether between the other tractice outfail and diffuser capacity, and will have



flows are handled and could threaten overall system performanc. In addition, in the event of flooding, the treatment plant may not be accessible to workers due to flooded roadways, and if electrical power supply is compromised or there is an interruption of the natural gas supply to the equalization basin pumps there may not be adequable backup direled the supply to operate the 2 measuret memorancy conerators for the duration.

#### Asset Description

West Coarly Westlewater Delatic (WCWD) was formed in 1921 and currently provides wastewater dispose service to 16.8 agreem level Cordina Coard Coarly, including interproporated sease (SFG of Delatic), portions of the clies of Richmond (40% of District), San Packlo (15% of Delatic), and Proble (25% of Delatic), wastewater from these seases is conveyed through a system of price and purpages for the Willer Pollution Control Part (WCPC) for discharge or resea. Currently, most of WCMO's 8 million galories per day MCMC) searings of westler for succondary selected filters at sent to Estimation 3 North Richmond West Poulsanes. Partly RWRWP and the Richmond Advanced Recycling Experience PARTE for mass by Chreston's Richmon Partley, Plows in some of 12.5 MCD and from that does not material the quality register by EdMCol for water could. WCMO series a population of approximately 92.57% residents, as used as inclusion, commercial and public continents. WCMO one and minarages for the release of public and powers authority, the West Country Agency, with the City of Richmond's Municipal Sanitary Sever Delatic of construct and mental me to call and offiliation in controls of Municipal Sanitary Sever Delatic of construct and mental me to call that offiliation is a construct and mental mental controls.

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DECEMBER 2015



### Six key planning issues

- Water-dependent Industries
- Employment Sites
- Creek-side Communities
- Access to Services
- Ad-hoc Flood Protection
- Parks and Open Spaces













# Water-dependent Industries



The County's seaport, marine oil terminals, and shoreline refineries rely on transportation and utility networks that are vulnerable to sea level rise and storm events.

Flooding of critical roads, rail lines, or pipelines both within the county and beyond could hinder critical goods export and import, negatively impacting the local and regional economy.









Workers living within and outside the County commute by car, and flooding of the local and regional transportation system will impact their ability to reach employment sites.

Flooding of the transportation system will also disrupt critical supply chains that employment sites rely on, resulting in lost employee wages and reduced output and profit.



Shoreline communities located near tidal creeks or channels are likely to experience flooding as sea levels rise, but have limited control over the maintenance and management of the creeks and channels they rely on.



Community members that are linguistically or socially isolated, elderly, very young, disabled or mobility-challenged can face difficulties evacuating and finding temporary shelter during a flood event as they depend on others for mobility, personal care and support, rely on universally accessible transportation and shelter-in-place facilities, and may require special care or equipment.



A lack of redundant transportation options and the limited number of public facilities may result in shoreline communities becoming isolated from emergency services, public and private healthcare providers, jobs, schools, and other critical services during flood events.

This could have significant consequences on public health and safety, local economies, and community function, and will be a particular challenge for communities with characteristics that place them at greater risk of flooding.



Some communities are protected from coastal flooding by rail lines, shoreline parks, and tidal wetlands.

While these built and natural areas reduce the flood risks they are not specifically designed or maintained for this function and therefore provide only "ad-hoc" flood protection.

Sea level rise will impact the ability of these systems to continue providing the current level of flood protection benefit.





Shoreline parks and open spaces are often the first line of defense against inland flooding, are themselves vulnerable to the early impacts of sea level rise, and provide an opportunity for early adaptation.

Damage or loss of shoreline parks and open spaces in the project area would have significant consequences on community access to public recreation and could negatively impact public health.



- Adaptation Responses for all 30 asset categories and the 6 key planning issues
- Actions to address all vulnerabilities identified in the assessment

therefore as communitie adversely the	e key ear s in the p	open spaces are not only the first line of defen ty adaptation opportunity sites. Damage or los- roject area, many of which could not be replace s, depending on their unique needs and capaci	s of these ed. Redu	parks and oper ction in access t	spaces would have significant	impacts on recreational uses and health of th
Action Timing	Number	Description	Related Actions	Implementation Lead(s)	Support	is this action a priority for further evaluation and
Near-term	6.1	Identify, monitor and repair (as feasible) natural and recreational areas within parks that are experiencing erosion, bluff collapse, increased flooding and salinity intrusion.	RP2.1	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWQCB, USACE	postrial imprementation :
	6.2	Develop guidance for regional shoreline park planning and project development activities that consider sea level rise to ensure impacts are factored into Idal welfand restoration and park management activities.	RP4.4	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWQCB, USACE	
	6.3	Educate the public about the early risk to parks from sea level rise, the multiple benefits parks provide (flood protection, wildlife, educational and recreational values), and the opportunities for adaptation to protect these functions.	RP1.2	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
Mid-term	6.4	Form or expand existing partnerships among park districts, park and recreation departments, private entities, community-based organizations and community members to develop a shared vision for protecting the function of parks and open space in the project area.	RP1.1	EBRPD, County, Cities	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpolit and Community-based Organizations	
	6.5	Develop a county-wide park enhancement and protection plan that identified opportunities for increasing the resilience of parks that are vulnerable to sea level rise and the capacity of park that are not at risk.	RP7.1, RP7.2, CP5.1	County	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
	6.6	Develop and implement a decision-making and funding framework to guide shoreline landowners in addressing Bay Trail vulnerabilities in a manner that protects connectivity and maintains the trail as a regional connector.	BT1.1, BT4.3	Bay Trail	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
Long-term	6.7	Develop a multi-agency permit review and authorization program to expedite the ongoing maintenance, minor repair, or upgrade of shorelines that are already experiencing erosion, for example within existing parks and along the Bay Trail.	BT3.3, RP 2.3	BCDC	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWOCB, USACE, NOAA, BAFPA, IWRMP	
	6.8	Establish a new authority, or expand an existing authority, to plan, fund, manage and maintain shoreline solutions to protect existing parks, open space, and the Bay Trail		EBRPD, Bay Trail	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	



Vulnerability	Action	<b>Action Type</b>	Process	Possible Actors
GOV1: In Contra Costa, the CalARP and ISO sites have a high level of compliance	Develop and implement a self-assessment process for hazardous materials sites to gather critical information needed to assess site vulnerability and risk from sea level rise, storm events, and elevated groundwater	Evaluation	New Initiative	DTSC, RWQCB, USEPA, CCHS, Cities, County, private entities
with hazardous material inventories and contingency planning requirements, while the diverse and numerous other hazardous material sites that use, generate or transport smaller quantities	Require consideration of sea level rise impacts including flooding, increased groundwater levels, salinity intrusion, and increased liquefaction susceptibility risk in all hazardous materials operational and regulatory programs	Program/ operation	Operations	DTSC, RWQCB, USEPA CCHS
of hazardous materials have differing levels of compliance with operational and regulatory requirements.	Educate businesses that use, generate or transport smaller quantities hazardous materials about sea level rise impacts and the options for reducing the consequences of a flood event, i.e., elevating stored materials and limiting amount of materials stored	Education/ outreach		DTSC, RWQCB, USEPA, CCHS, Cities, County, private entities



A clear and compelling case for taking action, and implementation pathways for four overarching themes

- A resilient transportation system
- Integrated shoreline management
- Targeted education and outreach
- Improved emergency and hazard mitigation plans







### ART Contra Costa Outcomes



- ✓ A diverse and capable working group
- ✓ Broad resilience goals
- ✓ Locally refined sea level rise maps and shoreline analyses
- ✓ A robust vulnerability assessment
- ✓ An understanding of how flooding may impact the four sustainability frames
- ✓ Detailed adaptation responses
- ✓ A clear and compelling case for taking action both together and individually
- ✓ A path forward toward resilience







#### Project web page:

www.adaptingtorisingtides.org/project/contra-costa-county-adapting-to-rising-tides-project